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U. S. Dep. of Ag.

U. S. DEPARTMENT OF AGRICULTURE  
WEATHER BUREAU

CHARLES F. MARVIN, Chief

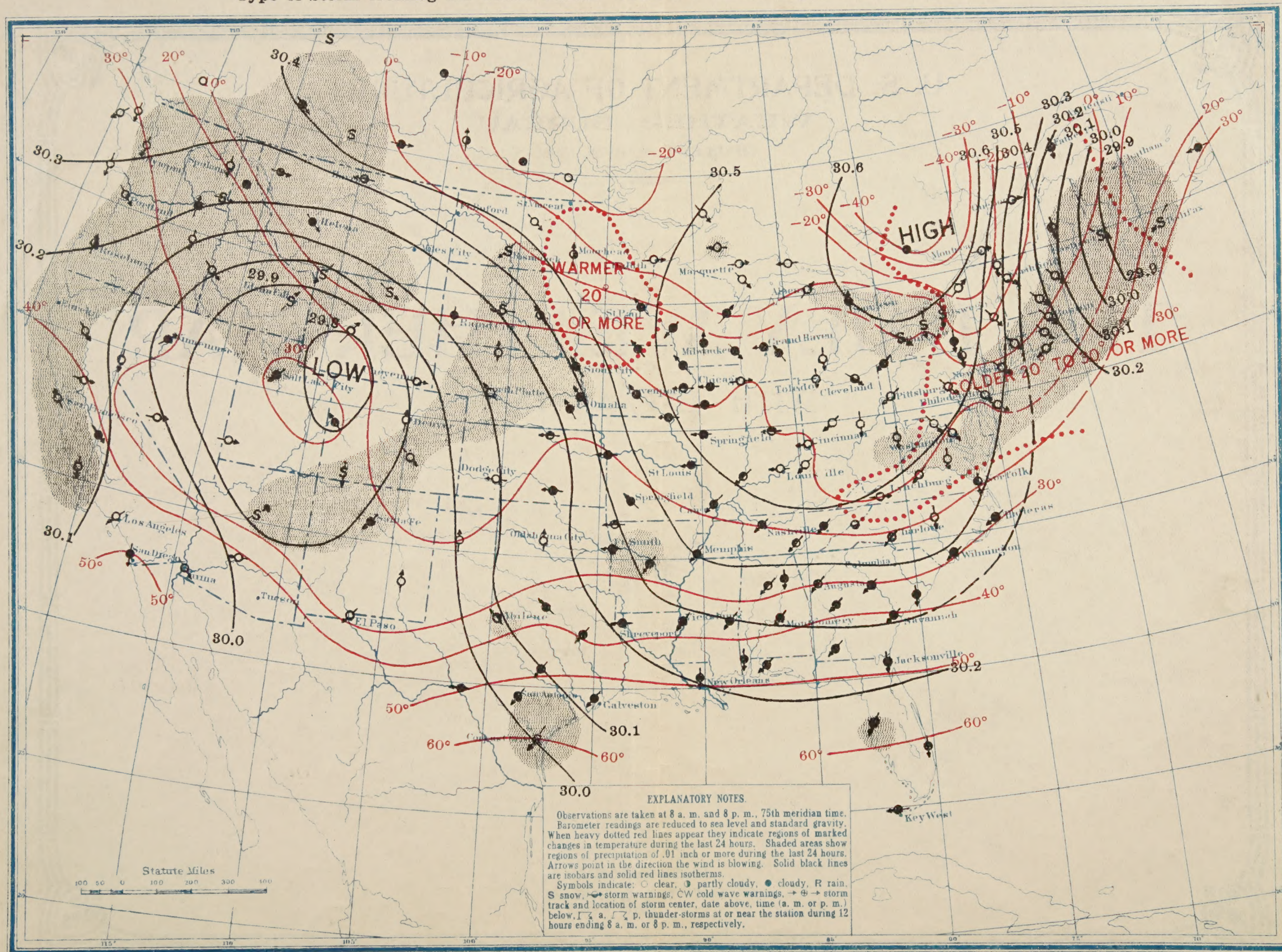
THE DAILY WEATHER MAP  
WITH EXPLANATION



WASHINGTON  
WEATHER BUREAU  
1929

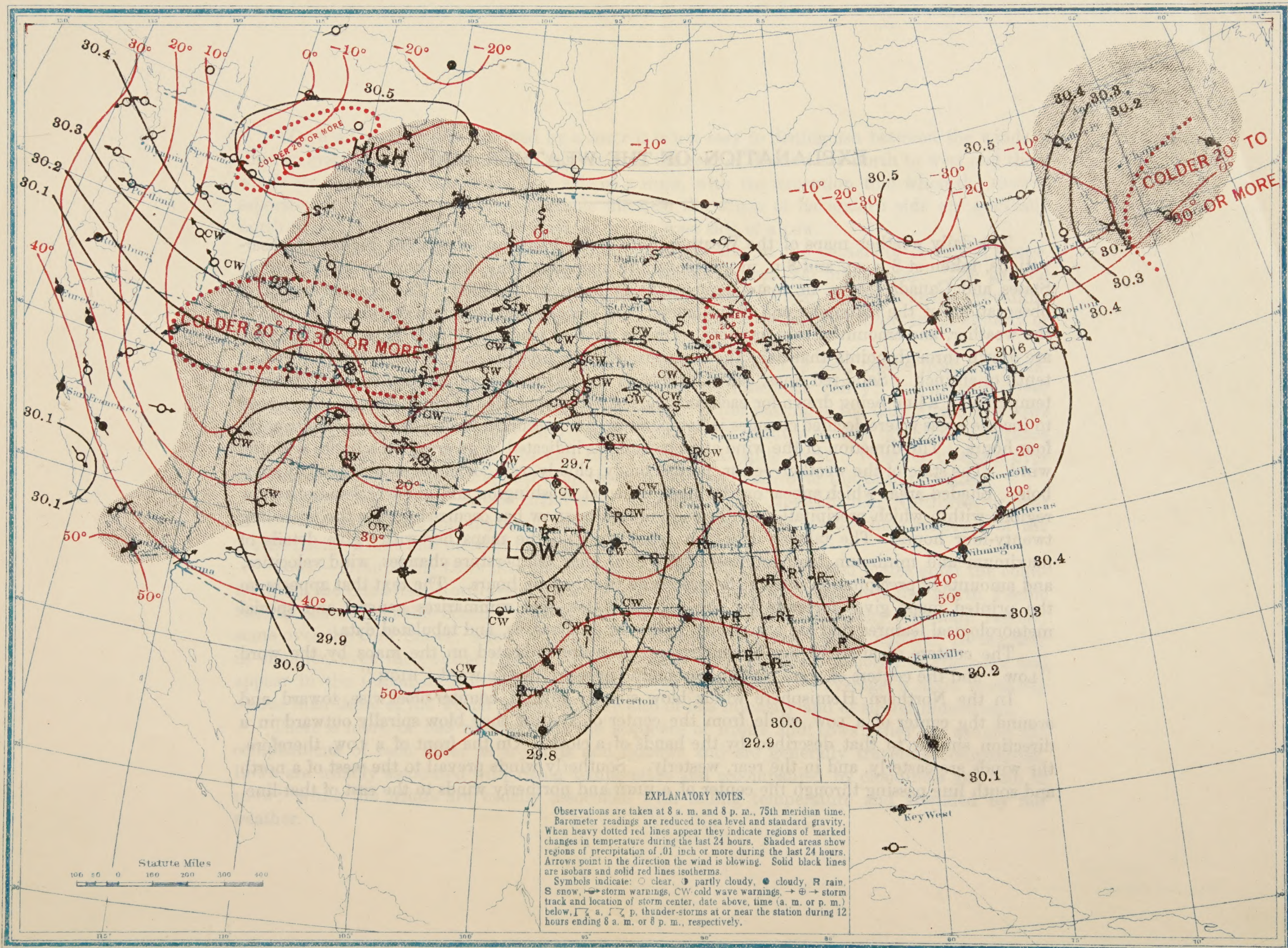


Type of Storm crossing the United States. Chart I. Weather Map, 8 a. m., January 30, 1908





Type of Storm crossing the United States. Chart II. Weather Map, 8 a. m., January 31, 1908





## EXPLANATION OF THE WEATHER MAP.

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The daily weather maps of the Weather Bureau are based on telegraphic reports of observations, taken at 8 a. m. and 8 p. m., seventy-fifth meridian time, from stations in the United States and Canada (see a. m. maps January 30 to February 2, 1908). The reports consist of observations of the barometer and thermometer, the velocity and direction of the wind, state of the weather, and amount of rain or snow. On the weather maps solid black lines, called isobars, are drawn through points that have the same atmospheric pressure, a line being drawn for each tenth of an inch. Solid red lines, called isotherms, are drawn through points that have the same temperature, a line being drawn for each ten degrees. Heavy dotted red lines are sometimes used to inclose areas where decided changes in temperature have occurred during the preceding twenty-four hours. The direction of the wind at each station is indicated by an arrow which flies with the wind. The state of the weather—clear, partly cloudy, cloudy, rain, or snow—is indicated by symbols. Shaded areas which appear on the maps issued at Washington and at several stations show regions within which precipitation in the form of rain or snow has occurred during the preceding twenty-four hours. The tabular data (not reproduced on the maps herewith) give details of maximum and minimum temperatures, twenty-four hour temperature changes, wind velocities, and amounts of precipitation during the preceding twenty-four hours. The text that appears on the printed maps gives forecasts for the several States, and summarizes general and special meteorological features that are also shown by the lines, symbols, and tabulated data.

The centers of areas of low barometric pressure are indicated on the maps by the word "LOW" and the centers of areas of high barometric pressure by the word "HIGH."

In the Northern Hemisphere winds blow spirally inward, counter-clockwise, toward and around the center of a LOW, while from the center of a HIGH they blow spirally outward in a direction similar to that described by the hands of a clock. On the front of a LOW, therefore, the winds are easterly, and in the rear, westerly. Southerly winds prevail to the west of a north and south line passing through the center of a HIGH and northerly winds to the east of that line.



When a LOW is closely followed by a HIGH it is not easy to distinguish between the winds of the two systems. As before stated, the winds in the rear of the LOW are north to west and these winds are also appropriate to the east side of a HIGH, with the exception that when the HIGH is separated from the LOW by a considerable distance the winds of its eastern side are generally north to east, rather than north to west, as on the west side of a LOW.

Separate and distinct from the circulation of winds around the centers of LOWS and HIGHS, the whole system of winds has a translatory movement of over 500 miles a day. The general course of LOWS and HIGHS in the United States is from west to east, the same as the prevailing winds. LOWS usually move in an easterly or north of east direction and HIGHS in an easterly or south of east direction.

In general there are two rather well-defined storm tracks: The first passes from the Canadian Northwest across the Lake region and down the St. Lawrence Valley; and the other over the middle Rocky Mountain region to the Gulf States. After passing to the Gulf States, the LOWS almost invariably recurve up the Ohio Valley, leaving the country by way of the St. Lawrence Valley, or else cross the Gulf States and recurve up the Atlantic coast. Weather changes over the Canadian Northwest will appear from three to four days later over the Eastern States.

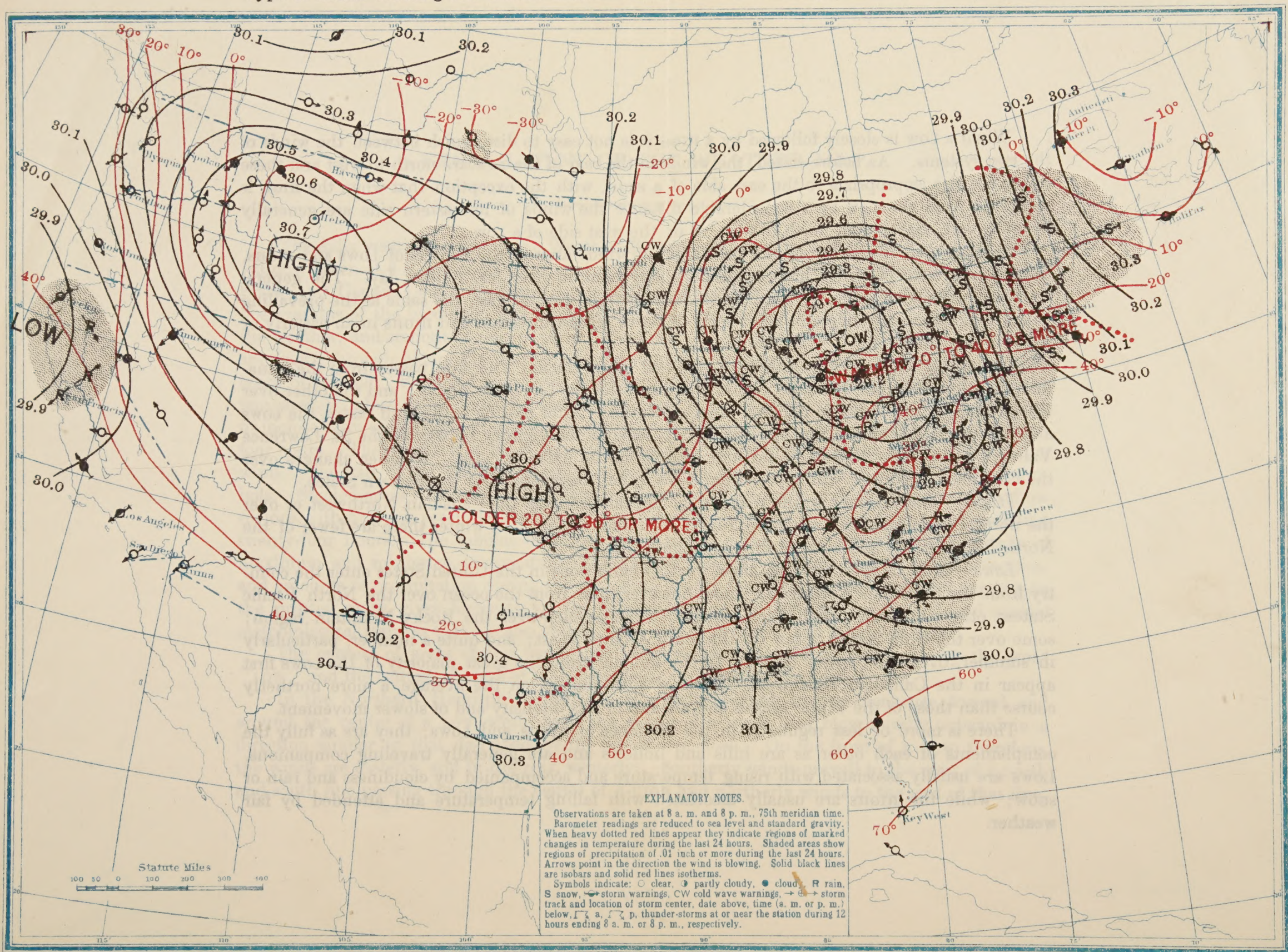
*Higs.*—The summer HIGHS make their appearance over the Canadian Northwest or over the north Pacific coast and northern Rocky Mountain region. In winter there are fewer of the North Pacific HIGHS and more of the Canadian HIGHS.

*Lows.*—Most of the LOWS that affect weather conditions in the United States enter the country from the Canadian Northwest; some, however, pass from the ocean over the North Pacific States; others over the South Pacific States; some develop over the Rocky Mountain region; some over the Gulf States; a few off the south Atlantic coast; and quite a number, particularly in summer, over the Central States. In the summer time the great majority of the LOWS first appear in the Canadian Northwest. Summer LOWS pursue, on the average, a more northerly course than those of the winter season and are also of less intensity and of slower movement.

There is more or less regularity in the sequence of HIGHS and LOWS; they are as fully the complements of each other as are hills and hollows and are generally traveling companions. LOWS are usually associated with rising temperature and accompanied by cloudiness and rain or snow; while the HIGHS are usually associated with falling temperature and attended by fair weather.

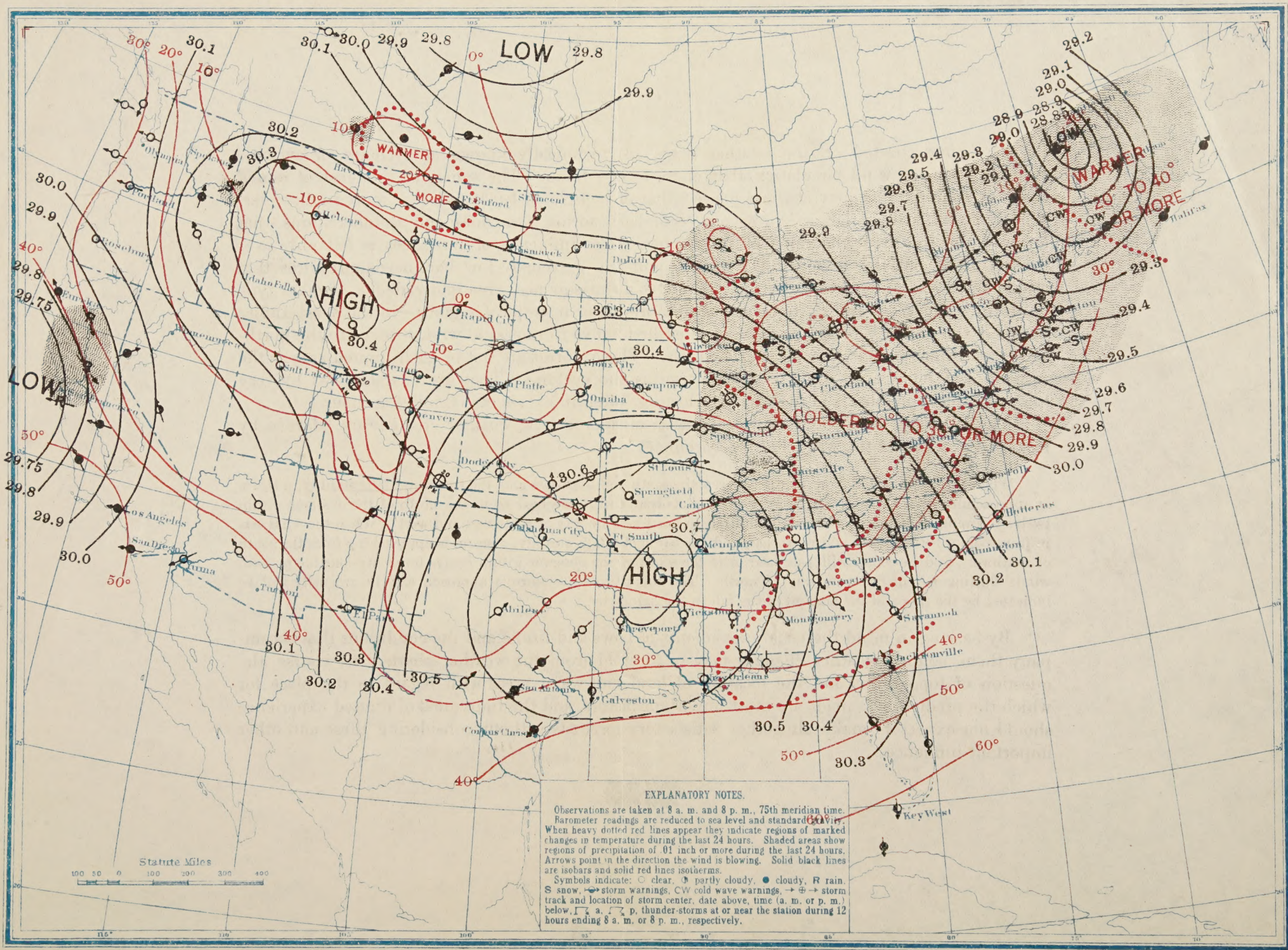


Type of Storm crossing the United States. Chart III. Weather Map, 8 a. m., February 1, 1908.





Type of Storm crossing the United States. Chart IV. Weather Map, 8 a. m., February 2, 1908





The LOWS charted on the weather maps are technically known as cyclones, or cyclonic systems, from the wind circulation that characterizes them. The sphere of influence of one of these cyclonic storms may at times exceed that of a circle of 1,000 miles or more in diameter. Associated with these larger storms are secondary storms, tornadoes and thunderstorms, that form in the southern quadrants of the former. The influence of tornadoes is felt only over limited areas, but the high wind velocities and the extremely low barometric pressures that attend them make them very destructive and, as a consequence, greatly dreaded. Another type of storm is the West Indian hurricane which originates in tropical regions—in the West Indies between the parallels of  $12^{\circ}$  and  $28^{\circ}$ . They first move from east to west, recurve to the northward, and then pursue a northeasterly course. These storms are not of such limited area as the tornado and neither are they nearly as large as the cyclone. They are characterized by very low barometric pressure and high wind velocities, often in excess of 100 miles an hour.

The following indications of the character of approaching weather changes are afforded by local observations of the wind and the barometer:

When the wind sets in from points between the south and southeast and the barometer falls steadily, a storm is approaching from the west and northwest, and its center will pass near or to the north of the observer within twelve to twenty-four hours, with winds shifting to northwest by way of southwest and west. When the wind sets in from points between east and northeast, and the barometer falls steadily, a storm is approaching from the south or southwest, and its center will pass near or to the south of the observer within twelve to twenty-four hours, with winds shifting to northwest by way of north. The rapidity of the storm's approach and its intensity will be indicated by the rate and the amount of the fall in the barometer.

By bearing in mind the usual movements of LOWS and HIGHS and the conditions that accompany them, coming weather changes may be foretold from the weather charts. Of course, the question of topography and the location of land and water areas with regard to the place for which the prediction is made are most important factors, and the individual of limited experience should not expect to make altogether satisfactory forecasts without considering these and other important influences.

